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THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN.  
MANUAL OF INSTRUCTIONS FOR ADMINISTERING AND SCORING THE  
CURIOSITY TASK.

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THIS MANUAL DESCRIBES MEASURES USED IN "THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN" PROJECT AT THE UNIVERSITY OF CHICAGO. THE SAMPLE FOR THE STUDY CONSISTED OF 163 NEGRO MOTHER-CHILD PAIRS SELECTED FROM 3 SOCIOECONOMIC CLASSES BASED ON THE FATHER'S OCCUPATION AND THE PARENTS' EDUCATION. A FOURTH GROUP INCLUDED FATHER-ABSENT FAMILIES. THE MOTHERS WERE INTERVIEWED AT HOME AND THE MOTHERS AND CHILDREN WERE TESTED AT THE UNIVERSITY OF CHICAGO WHEN THE CHILDREN WERE 4 YEARS OLD. FOLLOW-UP DATA WERE OBTAINED WHEN THE CHILDREN WERE 6 AND AGAIN WHEN THEY WERE 7. THE CURIOSITY TASK WAS GIVEN TO THE CHILD DURING THE SECOND UNIVERSITY TESTING SESSION. SIXTEEN PICTURES, DIVIDED INTO 8 COMPLEX/SIMPLE PAIRS OF SIMILAR STIMULUS TYPES, WERE SHOWN TO THE CHILD IN A BOX WHICH LIT WHEN THE CHILD'S HEAD WAS PUSHED AGAINST A BAR. THE VIEWING TIME WAS AUTOMATICALLY RECORDED. SCORING WAS BASED ON (1) THE TOTAL VIEWING TIME IN SECONDS, (2) THE TOTAL COMPLEX-PICTURE VIEWING TIME, AND (3) THE TOTAL SIMPLE-PICTURE VIEWING TIME. IN ADDITION, "CURIOSITY PROPORTIONS," DEFINED AS THE RATIO OF COMPLEX TO COMPLEX PLUS SIMPLE VIEWING TIME, WERE CALCULATED FOR EACH PAIR, FOR EACH TYPE OF STIMULUS COMPLEXITY, AND FOR THE OVERALL TASK. THE COMPLETE SET OF PROJECT MANUALS COMPRISES PS 000 475 THROUGH PS 000 492. (DR)

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THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN

Robert D. Hess, Principal Investigator

MANUAL OF INSTRUCTIONS  
FOR ADMINISTERING AND SCORING  
THE CURIOUSITY TASK

The measures described in this manual were developed in the project, Cognitive Environments of Urban Pre-School Children, supported by: Research Grant #R-34 from the Children's Bureau, Social Security Administration, and the Early Education Research Center, National Laboratory in Early Education, Office of Education, both of the U.S. Department of Health, Education, and Welfare; the Division of Research, Project Head Start, U.S. Office of Economic Opportunity; the Ford Foundation Fund for the Advancement of Learning; and grants-in-aid from the Social Science Research Committee of the Division of Social Sciences, University of Chicago.

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## THE COGNITIVE ENVIRONMENTS OF URBAN PRE-SCHOOL CHILDREN

The research sample for the Cognitive Environment Study was composed of 163 pairs of Negro mothers and their four-year-old children, from three socioeconomic classes, defined by father's occupation and parents' education: upper-middle, professional and executive, with college education; upper-lower, skilled and blue collar, with high school education; lower-lower, semiskilled and unskilled, with no greater than tenth-grade education; a fourth group included father-absent families living on public assistance, otherwise identical to the lower-lower class group.

Subjects were interviewed in the home, and mothers and children were brought to the University of Chicago campus for testing, when the children were four years old. Follow-up data were obtained from both mother and child when the child was six years of age, and again at seven years.

Principal Investigator for the project is Professor Robert D. Hess, formerly Director, Urban Child Center, University of Chicago, now Lee Jacks Professor of Child Education, School of Education, Stanford University.

Co-Investigator for the follow-up study is Dr. Virginia C. Shipman, Research Associate (Associate Professor) and Lecturer, Committee on Human Development, and Director, Project Head Start Evaluation and Research Center, University of Chicago, who served as Project Director for the pre-school phase of the research.

Dr. Jere Edward Brophy, Research Associate (Assistant Professor), Committee on Human Development, University of Chicago, was Project Director for the follow-up study and participated as a member of the research staff of the pre-school study.

Dr. Roberta Meyer Bear, Research Associate (Assistant Professor), Committee on Human Development, University of Chicago, participated as a member of the research staff during the pre-school and follow-up phases of the project and was in charge of the manuscript preparation during the write-up phase of the research.

Other staff members who contributed substantively to the project include Dr. Ellis Olim (University of Massachusetts, Amherst), who was responsible for the major analysis of maternal language; Dr. David Jackson (Toronto, Ontario), who was involved in early stages of development of categories for the analysis of mother-child interaction, and participated in the processing and analysis of data; Mrs. Dorothy Runner, who supervised the training and work of the home interviewers, acted as a liason with public agencies, and had primary responsibility for obtaining the sample of subjects; and Mrs. Susan Beal, computer programmer.

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SUMMER 1967

INTRODUCTION

The four-year-old children in the Cognitive Environment Study sample were administered an experimental measure of curiosity at the second testing session. The stimuli were eight pairs of simple and complex drawings, adapted from those used by Berlyne, Smock and Holt, and the Cantors. The viewing apparatus or "curiosity picture-box" was similar to that used in the Cantors' studies.

PROCEDURE

Sixteen test pictures, preceded by two trial cards, were presented to the child one at a time in a large viewing box: each card was inserted inside the box at the rear, and the child was told to look through a viewing slot at the front of the box. The pressure of the child's head on a bar immediately above the viewing slot operated a light so that the interior of the box was illuminated and the picture could be seen only when the child was leaning his forehead against the bar, looking into the viewing slot. The same mechanism activated a clock. When the child sat back in his chair, moving his head away from the viewing slot, the light went off and the clock stopped. Viewing time was registered on the clock to .01 seconds.

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STIMULI

Each of the eight pairs of drawings of common geometric figures, elements, and animals, is composed of a simple and a complex member, defined by the number of objectively observable elements or relationships represented. Each pair is characterized by one of four types of stimulus complexity, as indicated in the illustration. The order of presentation of the 16 cards was counterbalanced for type of complexity and for complex vs. simple.

ADMINISTRATION

The subject was seated in a child-sized chair, facing the picture-box which was placed on a low table. The examiner sat to the child's right, and perpendicular to the child's line of vision.

The instructions given to the child by the examiner were aimed at accomplishing, in steps, the following:

1. the child understands how to make the light go on;
2. the child understands how to make the light go off and how to keep it on for some time;
3. the child explores the empty box to satiate any motivation toward that object;
4. the child demonstrates, in two trial items, his ability to turn on the light, focus his attention on the drawing inside the box, and turn the light off when he no longer wants to see that item.

The specific instructions given to the child, with auxiliary instructions for children who do not catch on immediately or whose behavior might disrupt the task or distort the performance measures, are listed below in these four steps.



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1. NOW WE'RE GOING TO LOOK AT SOME PICTURES. THIS IS A PICTURE-BOX. IT DOESN'T HAVE ANY PICTURES IN IT NOW, BUT I'LL PUT SOME IN FOR YOU TO LOOK AT. NOW, YOU LOOK IN HERE (indicate viewing-slot).
  - a. If S doesn't look or looks without pressing forehead against bar: LOOK HARDER. HARDER THAN THAT. LOOK REAL HARD. (etc., until S' head has triggered light).
  - b. If S still hasn't caught on, press his head against the bar until light clicks on.
  - c. When S turns light on with head: WHAT HAPPENED? WHAT DID YOU DO? YOU MADE A LIGHT GO ON, DIDN'T YOU?
  - d. If S still hasn't turned light on, demonstrate: WATCH ME. SEE, I PUT MY EYES RIGHT HERE SO I CAN SEE INTO THE BOX. NOW WATCH (get S' face next to E's) -- SEE, I CAN MAKE THE LIGHT GO ON. NOW YOU DO IT: PUT YOUR HEAD HERE AND MAKE THE LIGHT GO ON.
2. YOU CAN TURN THE LIGHT ON WITH YOUR HEAD, CAN'T YOU? CAN YOU MAKE IT GO OFF? AND ON AGAIN? CAN YOU MAKE IT STAY ON?
  - a. If S uses hands: YOU CAN TURN IT ON WITH YOUR HANDS, CAN'T YOU? BUT I WANT YOU TO DO IT WITH YOUR HEAD. PUT YOUR HANDS ON THE TABLE/IN YOUR LAP, AND MAKE THE LIGHT GO ON WITH YOUR HEAD.
  - b. If S "plays" with light, clicking it on and off: JUST MAKE IT GO ON AND STAY ON: CAN YOU DO THAT?
3. When S has mastered the light switch: NOW YOU CAN SEE WHAT'S IN THE BOX. YOU CAN LOOK AS LONG AS YOU WANT. IS THERE ANYTHING IN THERE? (Chat with S until he has explored the empty box and seems to be ready for the pictures. Light should be off and clock reset to 0.)
4. NOW I'M GOING TO PUT A PICTURE IN FOR YOU TO LOOK AT. DON'T LOOK UNTIL I SAY READY/OK. WHEN I GET THE PICTURE READY, I'LL SAY READY/OK, AND YOU CAN TURN ON THE LIGHT AND LOOK AS LONG AS YOU WANT. WHEN YOU'RE TIRED OF LOOKING AT THE PICTURE, JUST SIT BACK AND I'LL GIVE YOU ANOTHER ONE.
  - a. Insert trial card A: READY/OK.  
When S is through looking and light is off, ARE YOU THROUGH LOOKING AT THAT PICTURE? DO YOU WANT TO LOOK AT IT SOME MORE, OR SHALL I PUT ANOTHER PICTURE IN?
  - b. If S says he's through (If S looks again, when he's finished second viewing): remove card; record time; reset clock; OK, NOW I'M GOING TO PUT IN ANOTHER PICTURE (AND THIS TIME LOOK JUST ONCE, FOR AS LONG AS YOU LIKE). WHEN YOU'RE THROUGH LOOKING AT THIS ONE, SIT BACK, AND I'LL GIVE YOU THE NEXT PICTURE.

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- c. Insert trial card B: READY/OK.

When S is through looking, remove card, record time, reset clock. NOW YOU CAN LOOK AT THIS PICTURE AS LONG AS YOU LIKE. JUST SIT BACK WHEN YOU'RE THROUGH WITH IT.

- d. Insert card 1. Repeat c., above, if necessary, for any of the cards. Always say, "READY" or "OK" when a card has been inserted, to get S used to not looking before the card is in place.

SCORING

Two types of scores were obtained from the recorded total viewing time for each picture: total viewing scores, and proportion scores indicating relative preference for complex or simple items.

Total Viewing Time: the total number of seconds (to .01 seconds) for all sixteen cards; subscores for Total Viewing Time include the Total Complex Time or total number of seconds viewing the eight complex items; and Total Simple Time or the total time viewing the eight simple items.

Curiosity Proportion scores included, for each pair, the ratio of time viewing the complex member to the total time spent on both members of the pair (complex / complex + simple); for each type of stimulus complexity, a mean proportion score was obtained by summing the proportion scores for the two pairs representing that type of complexity, and dividing by two (e.g., pair 2 proportion + pair 6 proportion, divided by two, gives the average proportion score for Incongruity). Finally, an overall curiosity ratio score was obtained by dividing the Total Complex Time by Total Viewing Time. This score is again complex / complex + simple, a summary statement across all 8 pairs without, however, giving equal weight to each pair: it is not the average of the 8 proportion scores.